REMARKS/ARGUMENTS

Fuereder teaches the use of stabilization in his Abstract which states; "The stabilizing chamber is equipped with pumps for intake and discharge of water, allowing adjustment of the buoyancy of each satellite station." This is the submerged chamber and provides vertical stabilization, or essentially moving the buoy up and down in the water column, however this is stated for the purpose of raising and lowering the platform to rise up from underwater, shoot a weapon and then disappear " Column 3, lines 42: "The use of the telescoping or extendable mast enhances the rapid deployment of the sensors and weapons, since the system then need not rely on buoyancy changes alone for positing the platform." There is no teaching that this is, or could be used to adjust for wave heave as the system bobs on the surface.

Fuereder also shows a U-joint at 34 that allows the submerged weighted mechanism to move separately from the floating platform. Essentially, when the buoy comes up hard against the anchor line, the U-joint removes some of the hard shock that would be transmitted to the platform. Even if it acted as a stabilizer, Fuereder does not teach how this would work, and his U-joint precludes stabilization in the azimuth axis. Grober in claim 37 (d) teaches the requirements for a motorized stabilization system; "at least one of the devices is stabilized by the stabilizing head which is comprised of at least a stabilized payload platform, sensor(s) and motor(s) for stabilizing the payload platform in at least two of the three axes of pitch, roll and azimuth, ..." Grober additionally, in Claim 37, teaches azimuth stabilization of the tool; "(f) the tool is stabilized in at least two axes, including azimuth, relative to the object that it is performing a task upon".

Grober is further novel in his ability to maintain a position relative to the object on which the task is being performed through the use of positioning motors found in Grober Claim 39; "The stabilized buoy platform of Claim 37 comprising a propulsion unit to move the buoy to various locations to accomplish the physical operation or task."

Essentially where Fuereder is a series of "submersible satellite stations" that are used to "establish and maintain control over an area of the sea." (Fuereder's Abstract) Feureder

does not teach the stabilization required, nor the ability to move or maintain a position with respect to the object which is being painted, welded, sand blasted, etc., and which would require the ability of the sensor to sense the object, detect changes in the object (such as areas being painted) and to work in conjunction with the tool in an ongoing procedure to accomplish a task.

Royalty teaches a system of achieving stabilization of an antenna that uses a canted cross level positioner. This is essentially a novel mechanical and algorithmic configuration for a stabilization head in relation to his cited prior art. Most of those references are also electro-mechanical methods of achieving stabilization, generally of an antenna. Those references include Welch and Matthews, both of which were prior art references in either the 6,611,662 patent or its reexamination. Royalty, just like the prior art references, does not teach a plurality of devices, nor the use of tools to accomplish tasks that are based upon the stabilization of the tool to accomplish a physical task. Similarly, Royalty does not teach a sensor and tool working together to accomplish a task, such as in Grober Claim 37, nor the ability to maintain a position relative to an object to which a task is being performed upon, such as in Grober Claim 39.

Dodge does not teach stabilization that is considered "active" in the sense that Dodge does not require sensors or motors to keep the platform level such as is taught in Grober claim 37 (d) which teaches the requirements for a motorized stabilization system; "at least one of the devices is stabilized by the stabilizing head which is comprised of at least a stabilized payload platform, sensor(s) and motor(s) for stabilizing the payload platform in at least two of the three axes of pitch, roll and azimuth, ..." Grober additionally, in Claim 37, teaches azimuth stabilization of the tool; "(f) the tool is stabilized in at least two axes, including azimuth, relative to the object that it is performing a task upon". Dodge is simply a universal joint and is not comprised of any sensors or motors to actively stabilize the mechanism. There is also no active computer control for accomplishing a task that requires stabilization, nor any interaction between his sensor and the tool, or stabilization of a tool.

The Examiner's objection in 42 concerning Fuereder/Royalty or Dodge in view of Rast would be overcome once the primary objection to Fuereder, Royalty and Dodge is overcome.

The Examiner's objection in 42 concerning Fuereder/Royalty or Dodge in view of Harper's heat sensing would be overcome once the primary objection to Fuereder, Royalty or Dodge is overcome.

SUPPORT FOR AMENDED CLAIMS

Claim 37: (Currently Amended)

A stabilized buoy platform comprising:

(a) a buoy,

(b) at least one stabilizing head is mounted to the buoy;

(c) two devices including at least one sensor and one tool ~~at least two devices which include at least one of a sensor and one of a tool, and~~ wherein

(d) at least one of the devices is stabilized by the stabilizing head which is comprised of at least a stabilized payload platform, sensor(s) and motor(s) for stabilizing the payload platform in at least two of the three axes of pitch, roll and azimuth, and ~~stabilizes in two or three axes which include of pitch, roll and or azimuth, and~~

(e) the tool undertakes a physical operation or task which includes at least one of painting, drilling, welding, sand blasting, fire extinguishing, spraying ~~with water, spraying with chemicals, pumping water, pumping chemicals (.)~~ , pumping, illuminating, and

(f) the tool is stabilized in at least two axes, including azimuth, relative to the object that it is performing a task upon.

SUPPORT:

The word changes in (c) clarifies that at least one sensor and one tool are stabilized and is in response to the examiner's objection.

The addition in (d) adds clarification that the stabilization system for the sensors and weapons is an active stabilization system in the sense that electronic sensors and motors actively and forcefully position the payload platform. This is a different type of stabilization from passive stabilization, such as where a U-joint, like that in Fuereder Fig 3, # 34 allows movement to occur, essentially de-coupling the payload platform from the motion of the submerged buoy.

The word changes in (e) address limitations on the tasks.

(f) states the tool is stabilized in at least azimuth based upon Original Claim 1, which was amended into the specification at 0007. The ABSTRACT states that tools need to be stabilized to perform their intended functions.

Claim 47: (Currently amended)

~~The stabilized buoy platform of Claim 37 wherein a computer recognizes movement within the stabilized sensor image and;~~

~~the computer sends signals which control at least one of the sensor, the stabilizer or the tool to track the movement seen within the stabilized image.~~

The stabilized buoy platform of Claim 37 wherein a computer that is stationed on the buoy platform, interprets camera or sensor imagery, and identifies an object or tracks its path of motion.

SUPPORT: See the SUPPORT to Claim 48.

SUPPORT for claims 47, 48: Examiner Comment: The Examiner cited no antecedent basis for "computer" "It is unclear if the computer is part of the claimed invention or not. Appropriate correction is required."

Inventor's response: Antecedent basis exists as follows;

Paragraph 0007. "With the introduction of autonomous security systems, computers are being relied upon to interpret camera and sensor imagery from video, infrared, and other sources. During surveillance if the object is moving randomly through the sensor's field of view due to buoy motion, it will be more difficult if not impossible task identifying the object or it's path of motion."

Paragraph 0029: "The stabilizing head 2 is preferably remote controlled and/or autonomous." **Inventor's note:** This was a reference back to "autonomous" in paragraph 0007, wherein computers are relied upon to interpret the data and identify an object or its path of motion, in essence, tracking it.

Paragraph 0036: "The stabilizing system is preferably remote controlled and/or autonomous. ... In this embodiment, the buoy float with its stabilizing painting tool are

painting the side of a ship **48**." **Inventor's note:** Although the stabilizing system is also autonomous for holding a level horizon, the reference in this paragraph to autonomous is the action of "painting the side of a ship" which is an task or physical operation controlled by computers.

The computer being "stationed on the buoy platform" is found in Original Claim 9.

> "The stabilized buoy platform of claim 1 wherein the device and/or tools can be operated from the buoy by direct control of a human operator or a computer stationed on the buoy platform."

The computer recognizing movement and sending signals to track an object is found in Claim 10:

> "The stabilized buoy platform of Claim 1 wherein the device and/or tools are sensors and
> (a) a computer recognizes movement within the stabilized sensor image; and
> (b) the computer sends signals to the stabilizer and/or camera which control the stabilizer and/or camera to track the movement of the object seen within the stabilized image."

Operating the device and/or tool is found in Claim 8 & 9, and Claim 11 states; "wherein the device and/or tools take an action based upon the commands from a person or a computer."

Original Claim 8:

> "The stabilized buoy platform of claim 1 wherein the device and/or tools can be operated from a remote location via wire or wireless control by a human or a computer."

Original Claim 11.

> "The stabilized buoy platform of Claim 10 wherein the device and/or tools take an action based upon the commands from a person or a computer."

The inventor respectfully submits that there is sufficient antecedent basis to support the computer controlling autonomy, and for it to be stationed either on the buoy platform or at a remote location.

Claim 48: (Currently Amended)

The stabilized buoy platform of Claim 37 wherein at the platform configuration includes a camera or sensor,

a corresponding illuminator, and

the computer interprets camera or sensory imagery from at least one ~~of the~~ sensor or tool, and sends ~~signals to a computer which then~~ controls at least one of the tools or supporting stabilizer to take an action.

SUPPORT: The Examiner cited no antecedent basis for "computer". The inventor's response for Claim 47 should overcome this.

The wording "The computer interprets camera or sensory imagery" is found in paragraph 0007.

Claim 49: (Currently Amended)

A stabilized buoy platform comprising:

(a) a buoy,

(b) at least one stabilizing head is mounted to the buoy;

(c) an extension arm extending downward into the water, and

(d) at least one device which includes at least one of a sensor or a tool, and which is mounted on the extension arm, wherein,

(e) the device is stabilized in the water in one or more axes of pitch, roll and azimuth by a stabilization system comprised by at least one sensor sensing motion of the platform or the device, and a motor stabilizing at least one of; the extension arm or the device.

SUPPORT: Additional wording for clarification.

Claim 50: (Currently Amended)

The stabilized buoy platform of claim 49 comprising at least two devices which include at least one of a sensor ~~or~~ and one of a tool, and

(c) at least one of the devices is attached above the water and at least one of the devices is attached below the water, and

(d) both devices are stabilized in one or more axes.

SUPPORT:

Clarifies at least one sensor and one tool.

Claim 52: (Currently Amended)

The method of stabilizing at least one device on a buoy and undertaking a physical operation or task comprising the steps of;

(a) mounting at least one stabilizing head on a buoy,

(b) mounting at least two devices on the buoy which include at least one of a sensor and one of a tool,

(c) mounting at least one of the devices on the stabilizing head, and using at least one sensor that senses motion of the buoy, and at least one motor which stabilizes the payload platform in response to information from the sensor, and

(d) the tool is undertaking a physical operation or task which includes at least one of painting, drilling, welding, sand blasting, fire extinguishing, spraying, pumping, or ~~with water, spraying with chemicals,~~ illuminating.

SUPPORT: Same support as for claim 37.

Claim 54: (Currently Amended)

The method of claim 53 including the step of;

the buoy platform moving to different locations using its propulsion system and initiating physical operations using the tools affixed to the platform.

Claim 55: (Currently Canceled)

Claim 56: (Currently Amended)

~~The method of claim 52 wherein there is the step of operating the stabilized sensor or the tool by at least one of remote control or autonomously.~~

The method of Claim 52 wherein the sensor senses the location of the object to be painted, and the sensor senses the non-painted areas of the object to be painted, and the painting tool evenly applies paint to the non painted areas based upon the information provided by the sensor.

Claim 60: (Currently Amended)

~~The method of claim 52 wherein there is the step of making the stabilizing at least one of remote controlled or autonomous, and~~

~~the stabilized painting tool is used for painting at least one of a ship, wharf, pier or pilings.~~

The method of claim 52 wherein both the sensor and the tool are stabilized in at least two axis which include the azimuth axis, and

the buoy has motorized propulsion allowing it to move to different locations using its location reference sensor, and initiate physical operations using equipment onboard the boy.

SUPPORT: Paragraph 0006:

"Different embodiments would also include "tools" to undertake a variety of physical operations which are linked to the ability of Grober 10/236,847 to capture images and sound, move to different locations and initiate physical operations using equipment onboard the buoy. Some of these operations are already claimed in Grober 10/236,847 and include GPS location reference, motorized propulsion and raising and lowering anchors and ground tackle."

Claim 61: (Previously canceled)

Claim 62 (Currently Amended)

The method of fighting a fire comprising;

(a) mounting at least one stabilizing head on a buoy or moving platform,

(b) mounting a device including at least one camera, sensor, or tool to be stabilized, on the payload platform of the stabilizing head,

(c) stabilizing at least one of the ~~camera,~~ sensor(s) or tool(s) mounted on the stabilizing head, wherein the sensor senses motion, and a motor, in response to information from the sensor, stabilizes the payload platform in at least one or more axes,

and

(d) the tool is at least one of a firefighting tool or fire hose for putting out a fire.

SUPPORT: Paragraph 0008.

" ... Should a fire occur underneath the pier, the buoy, remote controlled, either by human or computer means, moves to a fire fighting position, aims a stabilized water or chemical cannon at the flames to contain or put out the fire. Without the ability to have the cameras, sensors and tools such as the fire extinguisher device stabilized, both the surveillance and the response by the tool would be severely limited if not impossible in moving waters.

Claim 63: (Previously presented)
The method of claim 62 comprising a propulsion unit for moving the buoy to various locations.

Claim 64: (Previously presented)
The method of claim 62 wherein the buoy platform can be controlled by at least one of remote control or autonomously.

Claim 65 (Previously presented)
The method of claim 63 including the steps of;
the buoy platform, by at least one of remote control or autonomously, moving to a firefighting position and fighting a fire.

Claim 66 (Previously canceled)

Claim 67: (Previously presented)
The stabilized buoy platform of Claim 37 wherein the stabilized buoy platform is performing by remote control, at least one of the tasks of firefighting, painting, drilling, welding or sandblasting.

Claim 68: (Previously presented)
The stabilized buoy platform of Claim 37, which performs autonomously at least one of the tasks of firefighting, painting, drilling, welding or sandblasting.

Claim 69: (Previously presented)
The stabilized buoy platform of Claim 37 which paints autonomously at least one of a ship, a wharf, a pier, or pilings.

Claim 70: (Currently Canceled)

Claim 71: (Currently Canceled)

Claim 72: (Previously presented)
The stabilized buoy platform of Claim 37 which incorporates at least one of a GPS or magnetometer for location reference.

Claim 73: (Previously presented)
The stabilized buoy platform of claim 49 further comprising an actuating mechanism projecting downward to compensate for the rise and fall of the buoy platform to keep a sensor or device a fixed level below the surface of the water to the extent allowed by the actuating mechanism.

Claim 74: (Previously presented)
The stabilized buoy platform of claim 49 comprising a propulsion unit to move the buoy to various locations.

Claim 75: (Previously presented)
The stabilized buoy platform of claim 49 which is be controlled by at least one of remote control or autonomously.

Claim 76: (Currently Canceled)

Claim 77 (New)
The stabilized buoy platform of Claim 37 wherein a computer that is stationed on the buoy platform, interprets camera or sensor imagery,
identifies an object or tracks its path of motion, and

the computer sends signals which control at least one of the sensor, the stabilizer or the tool to track one or more object within the sensor's field of view.

Claim 78: (New)

The stabilized buoy platform of Claim 37 wherein the stabilizing head stabilizes in at least two axis including azimuth.

Claim 79: (new)

The stabilized buoy platform of claim 37 wherein the tool undertakes a physical operations, and
the stabilized buoy platform has motorized propulsion, and
a location reference sensor, and
the stabilized buoy platform uses its motorized propulsion to maintain position.

SUPPORT:

Paragraph 0006:

"It would be desirable to have a physical configuration of the stabilization platform that includes multiple cameras, multiple sensing capabilities and corresponding illumination. Different embodiments would also include "tools" to undertake a variety of physical operations which are linked to the ability of Grober 10/236,847 to capture images and sound, move to different locations and initiate physical operations using equipment onboard the buoy. Some of these operations are already claimed in Grober 10/236,847 and include GPS location reference, motorized propulsion and raising and lowering anchors and ground tackle."

Claim 80: (New)

The stabilized buoy platform of claim 37 wherein the tool undertakes a physical operation or task which includes at least one of spraying with water, spraying with chemicals, pumping water, pumping chemicals.

SUPPORT: These tasks were found in the previously presented Claim 37.

Paragraph 0015:

"In firefighting applications, where fire boats, probably at least 30' long with humans would be unable to approach a burning object, a low profile buoy, such as the

remote controlled buoy in Grober 10/236,847 can approach a fire, easily keep its circular shape cool with a shower-like stream of water, keep cameras trained on the fire, and use water cannon mounted on the stabilizer to pump water or chemical retardants into flames."

Claim 81: (New)

The stabilized buoy platform of claim 37 wherein a level sensor senses level relative to the payload plate and corrections are made for errors and anomalies over time of the gyros or rate sensors that sense motion of the buoy.

SUPPORT: Paragraph 0044

Where a level sensor attached to the payload plate such as described in Grober 6,611,662, would provide the level information of payload plate 334, and thus correct for errors and anomalies over time of the rate sensors in package A, as described in Grober 6,611,662, in situations where a sensor upon the payload plate is prohibitive, such as intense heat experienced in fire fighting, then the level sensor located on payload plate 334 can be moved to the buoy float 1b such as to location A. The resolution which can be provided is dependent upon the resolution of the encoders. The number of shaft sensors or encoders necessary will be at least one to sense the motion for each axis of the invention.

Claim 82: (New)

The stabilized buoy platform of claim 37 wherein a computer recognizes sensor data from the sensor and the computer controls the tool to perform its physical operation or task based upon information from the sensor.

SUPPORT: Claim 37 and the amended specification paragraph 0007.

END OF SUPPORT FOR AMENDED CLAIMS